REMARKS

This application has been carefully considered in connection with the Final Office Action dated May 29, 2007. Reconsideration and allowance are respectfully requested in view of the following.

Summary of Rejections

Claims 1-29 were pending at the time of the Final Office Action.

Claims 1-26 were rejected under 35 USC § 103(a) as being unpatentable over "*Mid-Tier Caching: The TimesTen Approach*" (hereinafter "*TimesTen*") in view of *Coram, et al.* (U.S. Patent Application Publication No. 2002/0107835, hereinafter "*Coram*").

Claims 27-29 were rejected under 35 USC § 103(a) as being unpatentable over "*Mid-Tier Caching: The TimesTen Approach*" (hereinafter "*TimesTen*") in view of *Coram*, further in view of *Ricketts, et al.* (U.S. Patent No. 6,901,383, hereinafter "*Ricketts*").

Summary of Response

Claims 2-13,15-19, 22-23, and 25-29 remain as originally submitted or previously presented.

Claims 1, 14, 20, and 24 are currently amended.

Remarks and Arguments are provided below.

Claim 21 has been canceled.

Summary of Claims Pending

Claims 1-20 and 22-29 are currently pending following this response.

Drawings

Figures 5, 6, and 7 have been amended to correct the drawing label for the rules engine from "26" to -- 28 --. This amendment is respectfully submitted not to introduce new matter, and is offered for clarification purposes.

Examiner Interview on July 19, 2007

Applicant thanks Examiner Stace for granting the telephone interview on July 19, 2007. In the interview, Claims 1, 14, 20 and 24 were discussed. In particular, Applicant and Examiner Stace discussed the presence or absence of specific limitations in Claims 1 and 14, as well as the art cited in the Office Action dated May 29, 2007. The amendments offered herein are respectfully submitted to incorporate the elements that were identified as not appearing to be present in the art cited. Examiner Stace indicated that upon receiving this amendment a further search may be required.

Response to Rejections

The pending disclosure teaches systems and methods for an application cache management system. These systems and methods may permit individual applications to create application specific caching rules. An engine may use these caching rules to monitor an in-memory database system. This engine will enhance database and caching operations by optimizing how data is cached based upon application specific rules.

Independent Claims 1, 14, 20, and 24 have been amended to clarify the phrase "without the involvement of the application, the in-memory database server, or a back office database."

Support for this amendment is found in the original specification including paragraphs [0043] and [0045]. Independent Claims 1, 14, 20, and 24 have been further amended to clarify that the application that is being cached may define the caching rules. Support for this amendment is found throughout the original specification including paragraph [0022].

With regard to the art rejections, the Office Action has cited as *TimesTen* teaching an engine that accepts application specific rules and manages application specific cache. However, *TimesTen* only discloses rules that *TimesTen* creates which determine in what time interval data is to be cached. The rules of *TimesTen* are not the same as the application specific rules of the pending disclosure. *TimesTen* does not teach or suggest allowing the application that is utilizing the data to determine how the data will be cached. Accordingly, *TimesTen* does not address the problems that arise when applying application-specific cache management rules to cached data. The present disclosure addresses and solves this very problem. This distinction will be discussed in greater detail in the analysis of the present claims that follows.

Rejections under Section 103

Claims 1-26 were rejected under 35 USC § 103(a) as being anticipated by "*Mid-Tier Caching: The TimesTen Approach*" (hereinafter "*TimesTen*") in view of *Coram, et al.* (U.S. Patent Application Publication No. 2002/0107835, hereinafter "*Coram*").

Claim 1:

Coram and *TimesTen* do not teach or suggest applying application-specific cache management rules to the cache data.

Applicant respectfully submits that the prior art of record does not teach or suggest all of the claim limitations found in Claim 1. Specifically, Claim 1 recites, "an engine operable to

monitor the in-memory database system and apply the rule to the application specific cached data; wherein the engine monitors the in-memory database system and applies the rule to the application specific cached data without the involvement of the application, the in-memory database server, or a back office database." The rule recited in this limitation refers to the second limitation of Claim 1 that requires, "an application utilizing data and having a rule related to caching the data, wherein the application defines the rules for the application specific cache." The Office Action noted that *TimesTen* discloses rules that it interprets to control the database caching. However, the rules noted by the Office Action by *TimesTen*, are limited to parameters set by *TimesTen* of refresh, full refresh, or incremental refresh. These rules do not define how data is to be cached, only when data is going be retrieved. In other words, *TimesTen* only has rules, which it defines itself, on when to retrieve data.

Claim 1 has been amended to clarify that an application may set specific caching rules. These specific caching rules define how data is to be cached. Amended Claim 1 recites the limitation "an application utilizing data and having a rule related to caching the data, wherein the application defines the rules for the application specific cache." This allows individual applications to define what type of data should or should not be cached. The original specification discusses this in paragraph [0049]:

> An example of an uncommon, non-generic rule will now be discussed briefly. The application 11 may wish to have a data item stay in cache for a specific length of time and then be removed from cache with part of the data item stored in the back office DBMS 22 and part of the data item stored in the COTS application 24. The rule which effects this kind of cache data maintenance is highly specific to the particular application 11. Such special cases are likely to exist for applications, and the contemplated application cache management system is flexible enough to handle these special cases.

Therefore, the application can create custom caching rules using the disclosed limitations of Claim 1. Unlike *TimesTen*, the application specific cache management system of Claim 1 accepts rules from an application, while *TimesTen* only implements rules defined by *TimesTen.* In addition, the cache rules of *TimesTen* are limited to the time when data is to be refreshed or loaded, while the application specific cache management system of Claim 1 defines any number of custom parameters defining how data is to be cached.

Coram also does not teach or suggest the limitation for allowing applications to define rules for cached data. The Office Action appears to suggest that the RS cache 106 of *Coram* manages cached data by applying a cache management rule that is provided by the application utilizing the data. However, *Coram* does not teach or suggest allowing the application that is utilizing the data to determine how that data will be maintained in cache. RS cache 106 manages all of the cached data in the same manner, regardless of the application that is utilizing the data. In the case of *Coram*, utilizing application 102 shown in Figures 1, 3, 5, 6, and 7 of *Coram* does not have any control over how RS cache 106 manages the cached data.

By contrast, the pending disclosure teaches applying application-specific cache management rules to cached data through the use of a wrapper and a rules engine. In one embodiment, the pending disclosure teaches a wrapper that is in communication with an application. In this manner, the application is able to pass data and any rules associated with the cache management requirements of the data utilized by the application to the wrapper. The IMDBMS of the present disclosure contains a rules event table whose entries include a rule type or rule event and a reference to the data associated with the rule type, such as a pointer. The rule type identifies a rule definition which fully describes the function to be applied to the data. The rule event or type entry is provided by the wrapper when a data item is first entered into the

cache. In this embodiment, a rule engine is operable to periodically poll or query, based on the rules, the IMBDMS. In this manner, the rule engine identifies cached data with the associated rule type. After identifying the cached data and the rule type, the rule engine applies the rule to the related data, thereby implementing the application specific rule outside of the IMDBMS.

It can be seen that this functionality provides implementation of application-specific rules without the inefficiencies associated with these rules being implemented by the application itself. In addition, this embodiment provides cache management of data functionality not provided by the IMDBMS, which promotes greater efficiency throughout the system. Such functionality and advantage are not taught or realized by *Coram*.

Therefore, for at least the reasons established above in Section I Applicant respectfully submits that independent Claim 1 is not taught or suggested by *TimesTen* in view of *Coram,* and respectfully requests allowance of this claim.

Dependent Claims 2-13 depend directly or indirectly from independent Claim 1 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established above in Section I, Applicant respectfully submits that Claims 2-13 are not taught or suggested by *TimesTen* in view of *Coram* and respectfully requests allowance of these claims.

Claim 14:

Similarly, independent Claim 14 recites, "an engine operable to monitor the in-memory database system and apply the rule to the cached data; wherein the engine monitors the in-memory database system and applies the rule to the cached data without the involvement of the application, the in-memory database server, or a back office database." Claim 14 also recites, "wherein the application defines the rules for the application specific cache."

Therefore, for at least the reasons established above Applicant respectfully submits that independent Claim 14 is not taught or suggested by *TimesTen* in view of *Coram,* and respectfully requests allowance of this claim.

Dependent Claims 15-19 depend directly or indirectly from independent Claim 14 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established above in Section I, Applicant respectfully submits that Claims 15-19 are not taught or suggested by *TimesTen* in view of *Coram* and respectfully requests allowance of these claims.

Claim 20:

Independent Claim 20 recites, "applying the rule to the data based on the rule component; wherein the application of the rule to the data occurs without the involvement of the application, the in-memory database server, or a back office database." Claim 20 also recites, "wherein the application defines the rules for the application specific cache."

Therefore, for at least the reasons established above Applicant respectfully submits that independent Claim 20 is not taught or suggested by *TimesTen* in view of *Coram,* and respectfully requests allowance of this claim.

Dependent Claim 22 and Claim 23 depend directly or indirectly from independent Claim 20 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established above in Section I, Applicant respectfully submits that Claim 22 and Claim 23 are not taught or suggested by *TimesTen* in view of *Coram* and respectfully requests allowance of these claims.

Claim 24:

Independent Claim 24 recites, "an engine operable to receive at least the component of the rule from the wrapper and apply the rule to cached data; wherein the engine applies the rule

to the cached data without the involvement of the application, the in-memory database server, or a back office database." Claim 24 also recites, "wherein the application defines the rules for the application specific cache."

Therefore, for at least the reasons established above Applicant respectfully submits that independent Claim 24 is not taught or suggested by *TimesTen* in view of *Coram,* and respectfully requests allowance of this claim.

Dependent Claims 25 and 26 depend directly or indirectly from independent Claim 24 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established above in Section I, Applicant respectfully submits that Claims 25 and 26 are not taught or suggested by *TimesTen* in view of *Coram* and respectfully requests allowance of these claims.

Claims 27-29 were rejected under 35 USC § 103(a) as being unpatentable over "*Mid-Tier Caching: The TimesTen Approach*" (hereinafter "*TimesTen*") in view of *Coram*, further in view of *Ricketts, et al.* (U.S. Patent No. 6,901,383, hereinafter "*Ricketts*").

Claims Depending from Claim 24:

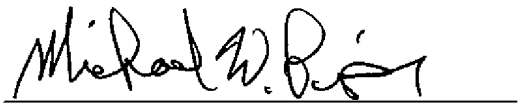
Dependent Claims 27-29 depend directly or indirectly from independent Claim 24 and incorporate all of the limitations thereof. Accordingly, for at least the reasons established above in Section I, Applicant respectfully submits that Claims 27-29 are not taught or suggested by *TimesTen* in view of *Coram* and respectfully requests allowance of these claims. Applicant respectfully submits that *Ricketts* does not cure the deficiencies of *TimesTen* in view of *Coram.*

Conclusion

Applicant respectfully submits that the present application is in condition for allowance for the reasons stated above. If the Examiner has any questions or comments or otherwise feels it would be helpful in expediting the application, he is encouraged to telephone the undersigned at (972) 731-2288.

The Commissioner is hereby authorized to charge payment of any further fees associated with any of the foregoing papers submitted herewith, or to credit any overpayment thereof, to Deposit Account No. 21-0765, Sprint.

Respectfully submitted,



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